

OFFICIAL JOURNAL

VOL. II WINTER 1977 NO. 4

CALIFORNIA
HISTORICAL
RADIO
SOCIETY



CALIFORNIA HISTORICAL RADIO SOCIETY INC.

P.O. BOX 1147
MOUNTAIN VIEW, CAL.
94040

PRESIDENT: Norman Berge

VICE-PRESIDENT: Dave Brodie

VICE-PRESIDENT: Peter Brickey

SECRETARY & LEGAL COUNSEL: Eugene Rippen

TREASURER: James Cirner

HISTORIAN: Larry LaDuc, Jr.

JOURNAL EDITOR: Allan Bryant.

For membership correspondence address the Treasurer, James Cirner, 13366 Pastel Lane, Mt. View, CA. 94040. Articles and non-commercial ads for the journal should be submitted to the Editor, Allan Bryant, 4251 Blewett Street, Fremont, CA. 94538. Historical data for copying or donation should be sent to the Historian, Larry LaDuc, Jr., 484 Arleta Avenue, San Jose, CA. 95128.

THE SOCIETY

The California Historical Radio Society is a non-profit corporation chartered in the state of California, and was formed to promote the restoration and preservation of early radio and radio broadcasting. Our goal is to provide the opportunity to exchange ideas and information on the history of radio (in California especially). We hope to be of service to those interested in such areas as collecting of equipment, literature, and programs, etc., and restoration of early gear. Regular meetings and swap meets are scheduled at least four times a year in the San Jose area. We now have over 100 members from throughout the state (and a few from out of state). As we grow so do our benefits to our members. Tell your friends about us!

The Official Journal of the California Historical Radio Society is published quarterly and is furnished free to members. Our first issue was published in September 1975 and copies of early issues are still available; the first issue is \$2.00, others are \$1.00 each. Articles for the Journal are solicited from all members. Any items of interest, such as restoration hints, information on early radio broadcasts and personalities, anecdotes about the pioneers, etc., will be gratefully accepted. anyone interested in editing a section of the magazine on a full time basis should contact the editor. This can relieve our editor of a great deal of work and insure maximum attention to your area of particular interest.

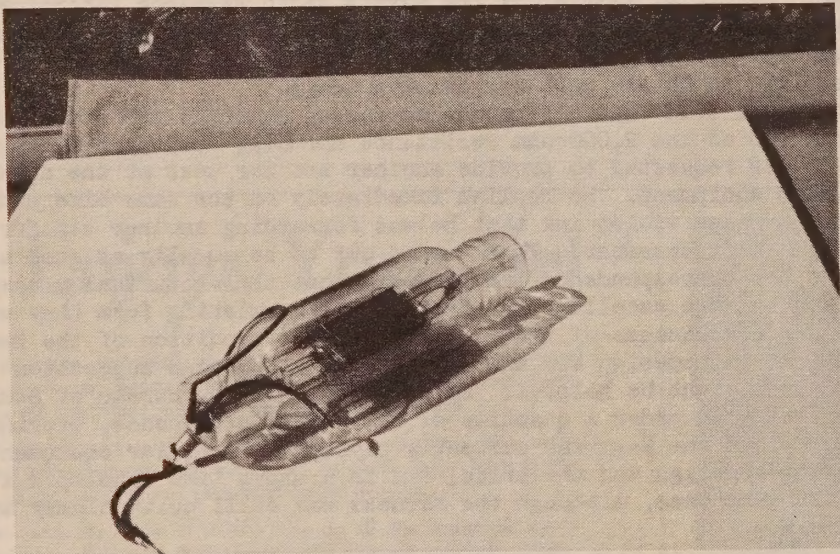


THE TUBE COLUMN

By Russ Winenow

This tube was made by Deforest sometime prior to 1920. A facsimile of Lee Deforest's signature and patent date of Oct. 17, 1916, are etched on the glass. The internal elements are supported from both ends by glass rods. Grid and filament connections are brought out at the bottom and the dual plates at the top. The entire assembly is very fragile. Gerry Tyne in the "Saga of the Vacuum Tube" reports that this tube was rated at 500 Watts input and was operated in pairs in a Radio Telephone transmitter made by Deforest. Later models were provided with end fittings to facilitate mounting.

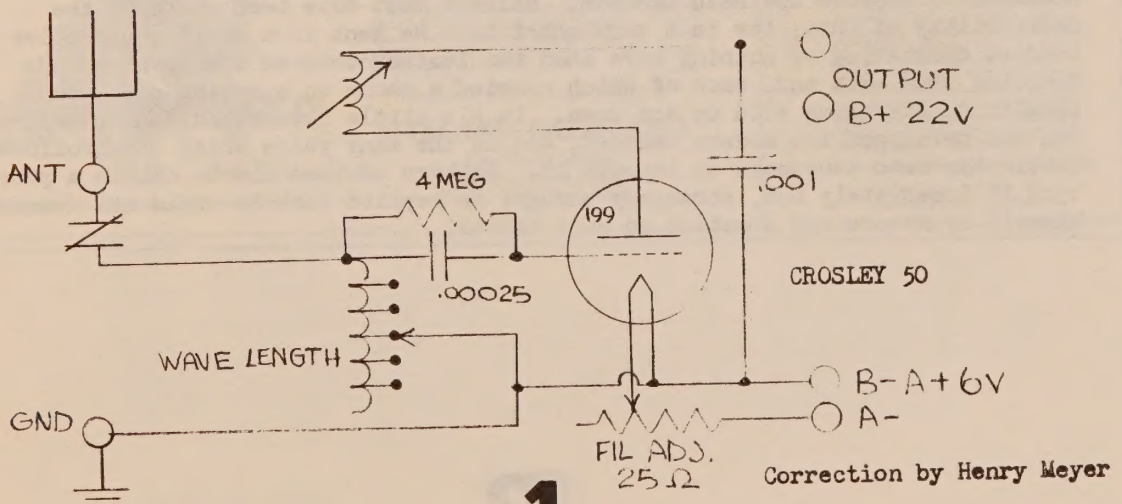
On the cover of "Radio" magazine of Nov., 1921, can be seen one of these transmitters with a young lady singing into a microphone. This was station 6XC. It was located on the roof of the old California Theatre at 4th and Market Sts., San Francisco and broadcasted music provided by Herman Heller's orchestra playing in the theater below. The actual tube shown above was one of the first to be used there but was soon to be replaced by the later version. It subsequently saw many hours of service at Ham radio stations 6AUU and 6AVG.



-----Our thanks to Floyd Lyons for submitting last issues tube article-----

CORRECTION

Last issues Featured Set schematic was in error.



Historian's Notes

By Larry LaDuc

THE BALDWIN HEADPHONE

The only small business concern providing radio equipment to the Navy during this period (1912), was one conducted for a short time by an individual named Baldwin. Long after he retired, Admiral Hepburn, in relating his experiences as Head of the Radio Division, Bureau of Steam Engineering, told of his association with Baldwin and of the Navy's role in assisting him to develop the modern set of headphones.

Like every other Government bureau or institution devoted to scientific work, the Radio Division received freak letters from backwoods inventors claiming miraculous discoveries. These were always politely answered, and when someone appeared to have an idea or a device possessing some merit it was promptly investigated. One day, while opening his mail, Hepburn came across a letter from Salt Lake City written with violet ink on blue and pink pad paper. The writer, a Mr. Baldwin, stated that he was sending a pair of telephones, which he had patented, and requested that they be tested. He wrote that they had a resistance of about 2,000 ohms, which he understood was standard for Navy headsets, but he could not be sure because he had no way of measuring it. The phones arrived promptly, packed in an old baking powder tin. They weighed about a pound, and were of radically different construction. The headset consisted of a piece of clock spring affixed to each phone and loosely bound together by hemp twine. Dr. L. W. Austin, of the Navy's Radio Research Laboratory, looked at them and laughingly took them for the requested testing. A few days later he informed Hepburn they were about twice as sensitive as any he had tested and advised him to obtain more for quality tests.

Baldwin was told that his phone had passed numerous tests and that they were within 100 of the 2,000-ohm resistance normally used by the Navy in its phones. He was requested to provide another set for test at the normal price paid for such equipment. He replied immediately on the same blue and pink paper with the same violet ink that he was forwarding another set for which he desired no reimbursement. This turned out to be equally as good as the first. Further correspondence informed him that the electrical properties of his headsets were excellent but that in their existing form they were impractical for use because of their weight and the condition of the head harness. He was advised to redesign and was provided with numerous suggestions which, it was considered, might be helpful. He was told that the Bureau of Steam Engineering was ready to order a quantity of his redesigned phones, provided they cost no more than the Navy was currently paying for similar equipment. He agreed to the redesign and the price, and in a short time developed a satisfactory set of headphones, although the harness was still quite clumsy and uncomfortable to wear.

It then developed that he was manufacturing these devices in his kitchen and, because of his limited facilities and the bonding clause of the Navy contract he would only accept one for 10 sets, after which another contract for 10 more sets would be accepted ad infinitum. These phones were far better than any on the market and the Navy was in a position to take his full limited output, so this procedure was accepted for the time with the hope that a more satisfactory solution would evolve.

After Baldwin had completed several contracts, Hepburn suggested that he endeavor to improve the head harness. Baldwin must have been aware of the desirability of this, for in a very short time he sent in a simple, effective headset consisting of nothing more than two leather-covered spring-wire rods dangling from each end, each of which carried a phone on a spring clip, thus permitting its being slid up and down. In his little kitchen workshop, Baldwin had developed the modern headset, and in the many years which have followed little has been necessary to improve it. Hepburn advised him to obtain a patent upon it immediately but, strangely enough, he replied that he would not demean himself by requesting a patent on such trivia.

The naval radio operators immediately set up a clamor for this comfortable, efficient headset, and this necessitated an increase in manufacturing capabilities. Hepburn suggested he be employed at a navy yard where good facilities could be made available; that he be given a royalty on each set manufactured, and also be allowed to exploit his device commercially. While Baldwin toyed with this idea, there was considerable two-way correspondence with one side of it always in blue, pink, and violet. He finally replied that, for domestic reasons, which Hepburn surmised were more or less peculiar to the Utah of those days, he could not move. At the time the final decision arrived, Firth of the Wireless Specialty Apparatus Co., happened to be in Hepburn's office.

He was apprised of the situation, and it was suggested that he might, with the Navy's blessing, make some satisfactory manufacturing arrangement with Baldwin. He immediately went to Salt Lake City and succeeded in arriving at an agreement with Baldwin, who closed his kitchen workshop. The contract contained one stipulation, the mention of which in later years was sure to arouse Firth's ire; The company could never increase the price of its headsets sold the U.S. Navy, even at a time when they were selling on the market at a price six times higher.

Taken from History of Communications-Electronics In The United States Navy. Prepared by Capt. L.S. Howeth, USN(Retired) under auspices of the Bureau of Ships and Office of Naval History.

RADIO for NOVEMBER, 1921

Who Enjoys Your Set?

Do you? Of course, **but** think what sport it would be to discard those awkward, tiresome and uncomfortable head sets—do away with them entirely—and get everything loud and clear all over the place.

And wouldn't it be great to treat your friends and neighbors to a radio music concert whenever you felt like it, or let them enjoy hearing the news events of the world as you pick them up by wireless.

And you can—with the Radio MAGNAVOX—do all this and more, easily and inexpensively. Ask your dealer about this marvelous wonder instrument or write us direct. Do it **now**, and make your set the source and center of enjoyment it should be.



Dealers: Write for Proposition

Send for FREE Card—

illustrating and describing the hook-up and operation of the Radio MAGNAVOX and the famous "movable coil" which makes it so efficient. This interesting card free. Send for it NOW.

General Offices and Factory

OAKLAND, CALIFORNIA

New York Office
370 Seventh Avenue
(Penn. Terminal Bldg.)



THE RADIO MAGNAVOX

A beautiful and efficient outfit, made in two sizes. Type R-2 uses $\frac{1}{2}$ ampere in field, Type R-3 1 ampere. Any amount of current can be used without distorting signals or injuring apparatus. Any one can operate the MAGNAVOX. Price, complete as illustrated—Type R-3 \$45
Type R-2 with 22" horn...\$110

At your dealer or
direct from factory

TECHNICAL SPOT

Carborundum in Radio By Joe Horvath

The story begins with Edward Goodrich Acheson in his little shop in the little town of Monongahela City, Pa. in the year 1891. Dr. Acheson had just completed a series of electrical experiments with Thomas A. Edison and so he became extremely interested in the then mysterious forces of electricity. In the course of his research he conceived the idea of creating an abrasive or grinding material that would take the place of emery, corundum and other similar materials made by Mother Nature.

The discovery and the making of Carborundum is a story in itself and a very fascinating one indeed. But this story only deals with the use of Carborundum in radio.

So since about 1900 Carborundum was used very extensively first as a very good detector of radio waves and later in various other uses such as grid leaks, stabilizing units in amplifiers, etc.

It became well known for its very stable qualities as a crystal detector, as it takes a very hard contact to operate as a detector, therefore, it would not jar loose very easily, which made it very desirable for early ship board operations.

The merits of the Carborundum Detectors were further enhanced by the development of the Carborundum Stabilizing Detector Unit, which provided complete control of the electrical characteristics of the Carborundum Detector and thus made it highly suited for all types of circuits.

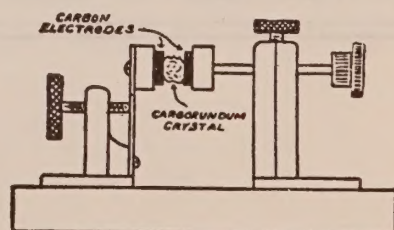
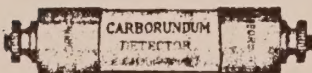
It was used with gratifying success in simple crystal sets, neutrodyne, superheterodynes, reflexes and tuned radio frequency amplifiers.

This same Carborundum was also used for noiseless Grid Leaks and coupling resistors for resistance coupled audio amplifiers with very faithful reproduction, even at high volume.

Carborundum is the only rectifying substance that can be used with a heavy pressure contact, so it is really the only material suited for permanent detectors. Carborundum detectors are built with five-pound contact pressure and retain sensitivity indefinitely. They are tested for permanence and must pass a rigid electrical and radio frequency check for rectification. This includes testing with high frequency currents of the order of .000005 amperes.

The detectors may be checked for rectification by connecting a dry cell (1.5 volts), pair of phones and the detector in series, a strong click should be heard when the detector is connected in one direction and almost no click when reversed. This indicates that it works right. The detector alone is suited for use in any set that is properly designed to work with a good permanent crystal detector.

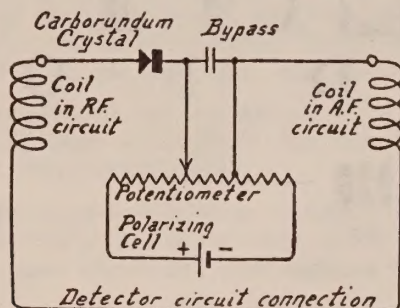
Carborundum Detector



Carborundum Detector

The Stabilizing Unit is an electrically controlled Carborundum detector and is adaptable to all detector circuits. This is because the detector impedance may be regulated, by the turn of a knob, so it exactly matches or meets the circuit requirements. The unit control is exceptionally fine and smooth, accurate to 1/1000th volt.

The unit consists of a high resistance potentiometer, built-in mica condenser, holders for a standard size flashlight cell and a selected Carborundum detector, which is provided. The two terminals are to be connected in the circuit just as though they were the terminals of a regular crystal detector.



Use of Polarizing Battery with Crystal Detector.

COW PALACE SHOW

This picture was taken at the September Cow Palace Antique Show. Our display was the featured display. I would like to express my thanks to the following members for their assistance in making this display possible: Jim Cirner, Dave Brodie, Paul Giganti, Peter Brickey, Gene Rippen, Henry Meyer and Mr. Paul Courtland Smith, associate professor of Audio-Engineering, San Francisco State College.

Norm Berge



RADIO NEWS VISITS

ATWATER KENT R A D I O

1926

By

Jerry Newton

When Hugo Gernsback published Modern Electrics in 1908 he introduced the world to the genre of "popular electronics". His Radio News continued in this vein, although numbering among its contributors Dr. Lee DeForest and others of impeccable scientific credentials.

A lack of consistent form and substantive content were compensated for by a kind of elan now found mostly in underground doggerel.

Thus in a search for some early A K history I found an interesting albeit sketchy description of A K's production methods in an early Radio News. The reporter, John Pern, was unmistakably smitten with a bad case of the "Gee Whiz" sometimes known as the "Dennis Day Syndrome".

Stripped of Pern's disclaimers and general awe, however, one finds a few interesting facts about early A K production.

A K Manufacturing of Philadelphia had for several years made automotive starting, lighting, and ignition systems. With the introduction of radio, they were in a position to not only assemble but to also manufacture every piece that was used in their sets.

Pern says that the transition to radio was easily attained by A K because of the similarity of the two fields.

"Radio design is a special branch of electrical engineering where the "transients" or small details encountered in power engineering become the important things. Automotive systems deal mainly with transients so that previous experience in that line was valuable when radio manufacturing was begun".

The A K daylight factory extended over twelve acres, and employed several hundred workers. The plant was organized into several independent units where the components were manufactured, sub-assembled, or final assembled.

Among the components stamped or milled were hardware (screws, nuts, bolts, etc.) condensers, rheostats, transformers, coils, bakelite, and cases. The molded parts were made on site in what was then the world's largest privately owned molding plant. A large woodworking facility was included.

Under the heading of "MACHINERY OF ALMOST HUMAN INTELLIGENCE" Pern goes on to say that ...

"All coils in the receiver are wound on special automatic winding machines in the twinkling of an eye. Most of these machines are tended by skillful girls with deft fingers.

Every advantage is taken of the possibilities of automatic machinery. Special gang drills bore many holes simultaneously as, for instance, in the bakelite end plates of the condensers. A huge punch press stamps out all the holes in the plate which is to become the panel... Spot welding machines weld the sub panel to the panel, and the supporting ring to the A.F. transformer casings.

Even the mahogany cabinets are made, and given that much-coveted satin finish in this plant. Unique devices in wood working machinery help to speed manufacturing."

Pern was particularly impressed by the large presses used for shaping speaker bells. The first step in the process was to stamp "the bell into a shape that resembles a dishpan". The bell was then moved to another press where it was given a finished shaping, and then sent to the paint shop.

Testing. Every component was tested before leaving its department. The receiver was tested by each department for the work done there, and the final assembled unit was tested twice.

Every transformer was compared with a standard before being accepted. Both voltage and amplification tests were given in order to ascertain insulation quality, open windings, and shorted turns.

Every tenth person was an inspector. Each receiver was subjected to "140 gauge and physical inspections and 19 electrical tests" before acceptance.

Pern provided three pictures of the plant including the coil shop with its vats of impregnating compound and various winding jigs.

Like Henry Ford, Atwater Kent was able to control his product from beginning to end. While this degree of independence is laudable as a personal achievement, it is often a questionable practice for corporate survival.

Reference: Radio News, February, 1929, P. 1110-111. Radio Receivers by Production Methods, by John A. Pern.

The Literary Digest for April 12, 1924

ATWATER KENT

Philadelphia

Highly Selective and Easy to Operate

IT is easy to operate an ATWATER KENT Receiving Set—anyone can tune in a distant station and obtain clear reception—its wide range, accuracy, and simplicity have made it an outstanding preference among families the nation over.

The tonal fidelity of an ATWATER KENT Loud Speaker is the delight of every owner.

ATWATER KENT MANUFACTURING COMPANY
4965 STENTON AVE., PHILA., PA.



FEATURED SET

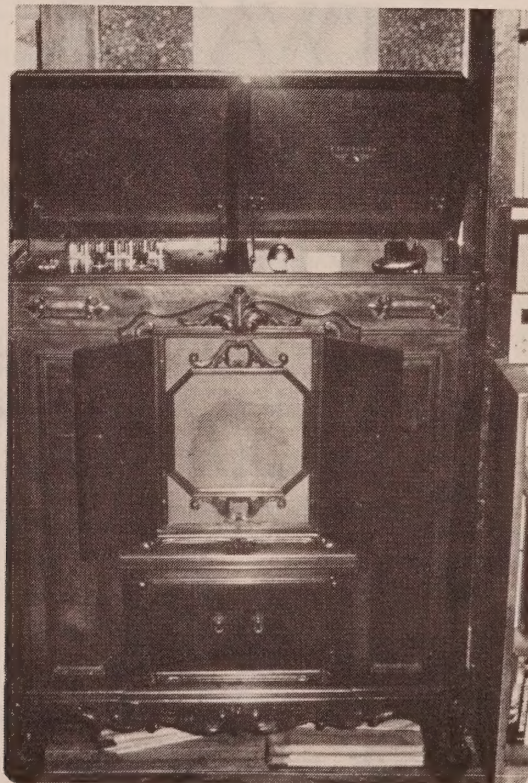
by Peter Brickey

This month the featured set is an electric one - one of RCA Victor's most prestigious sets of 1927, the Victor 'Number Nine-Twenty-Five'. This set sold for \$1150.00 in 1927 an amount of money which could purchase two Chevrolet coupes!

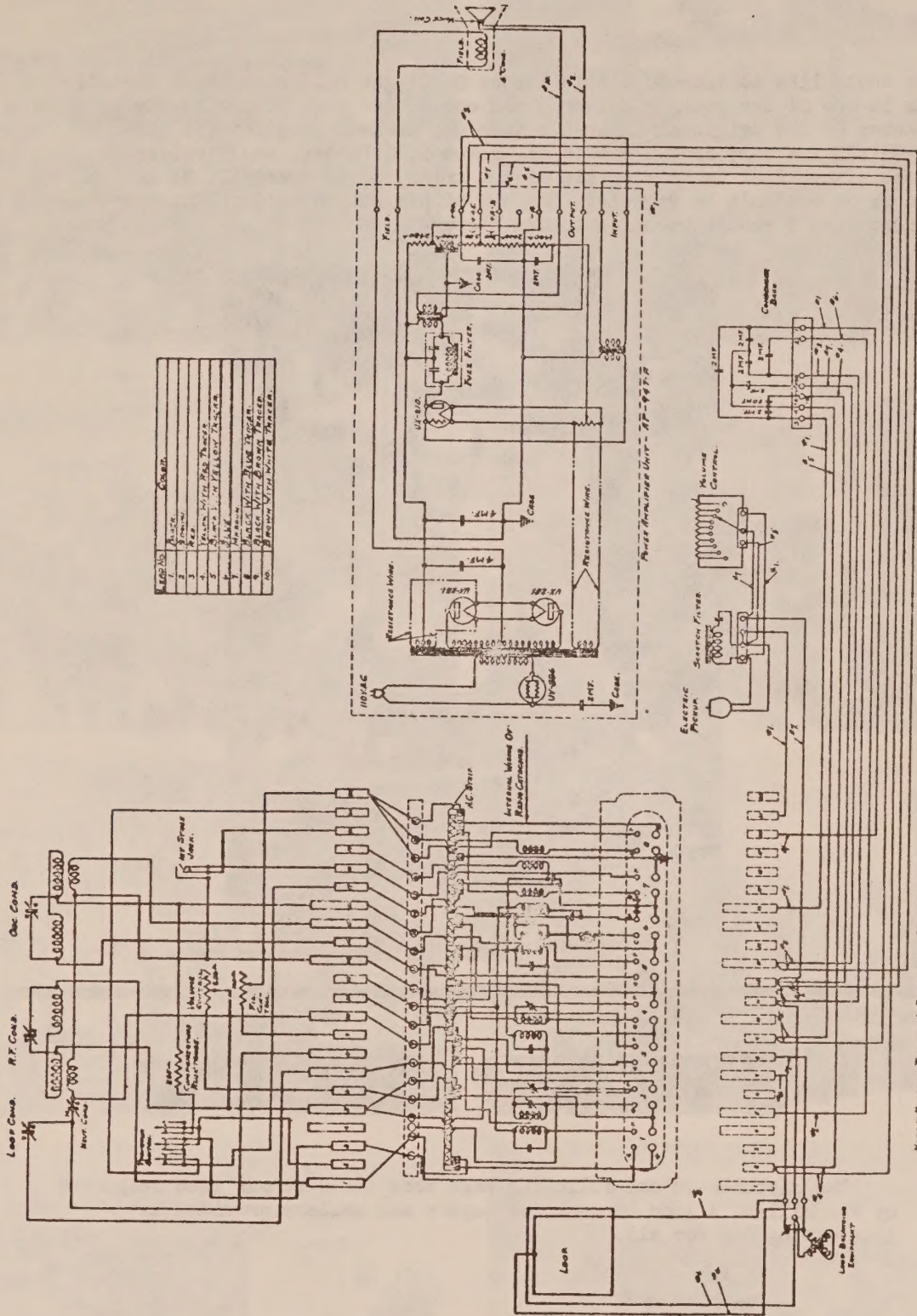
The set was described as an Electrola (electric phonograph) combined with an eight tube Radiola Super-Hetrodyne. The radio was a seven tube version of the Radiola 28, the eighth tube being a UV 886 ballast tube, one UX 210 was used in the amplifier to drive a 6" electrodynamic speaker. When switched for phonograph reproduction one of the UX 199's in the radio was utilized as the first audio amplifier.

This radio-phonograph combination was housed in a large cabinet of Italian Renaissance design, walnut veneered with a blended antique finish. The dimensions are 47" high, 40" wide and 18" deep and weighs around 300 pounds.

there were around 1500 of these sets made in 1927. Over the years, after the set broke down, many people stripped the radio and phonograph components from the cabinet and used it for a bar or to hold a more modern radio-phonograph. As a result of this practice very few complete Nine-Twenty-Fives exist today.



Victor Model 9-25



Wiring Diagram—Electrola 9-25

Note: All components are shown in their original positions. The diagram is for reference only.

COLLECTOR SPOTLIGHT

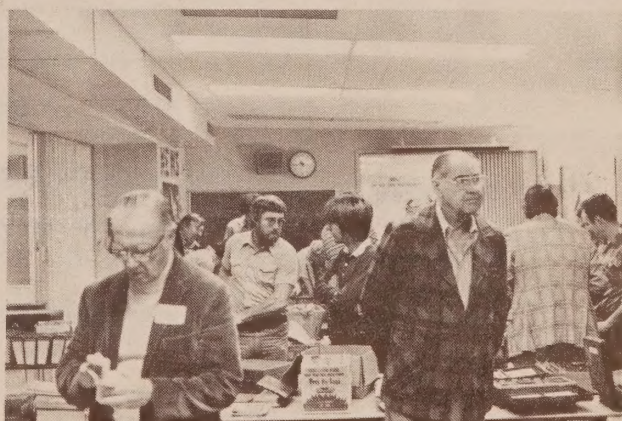
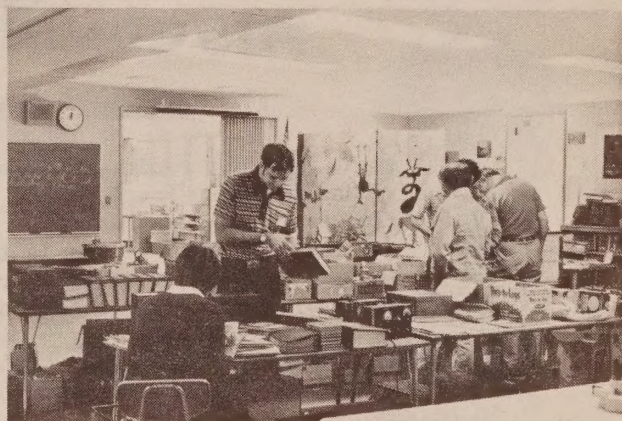
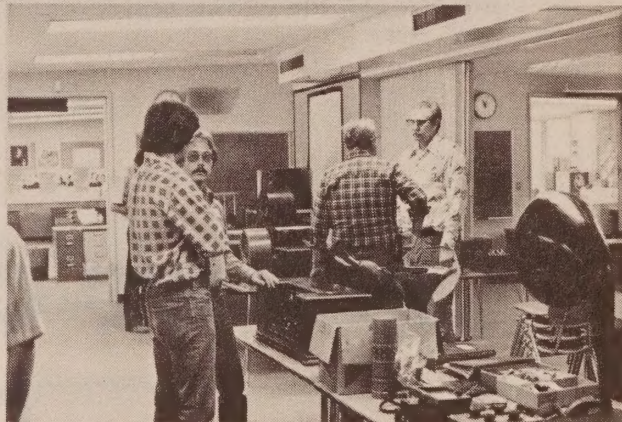
We would like to introduce this issues Spotlight Collector, Paul Giganti. He is one of our young oldtimers, and one of our most respected. He is a member of the original Eimac Electric Co. amateur gang (W6GVY). His specialities vary from Grebe to AK, Marconi, DeForest, and Wireless Speciality. Paul is holding his newest prize, an AK model 12. He is sorry he couldn't be standing in front of his entire collection, but there wasn't enough room for a good picture.



SWAP MEET

The pictures on the following page were taken at our last swap meet by Ken Miller. A good turn-out of buyers and sellers provided an interesting day for all.

----- Please note our new mailing address.(inside front cover)-----



WHAT GOES UP

PRESIDENT HARDING TO OPEN NEW RADIO STATION

President Harding will address practically all the peoples of the nations scattered throughout the civilized globe in one message which will be sent broadcast by radio on November 5, from the newest and largest wireless station in existence.

The arrangements were concluded recently during a personal visit paid to the President by David Sarnoff, general manager of the Radio Corporation of America. The occasion will be the opening of the New York Radio Central situated near Port Jefferson.

The station will be officially opened by the President, who will send his message from Washington over a land wire which will control the apparatus at the central station and fling the words out through space over an area which includes all the important nations of the world.

Radio News for November, 1921

...MUST COME DOWN.

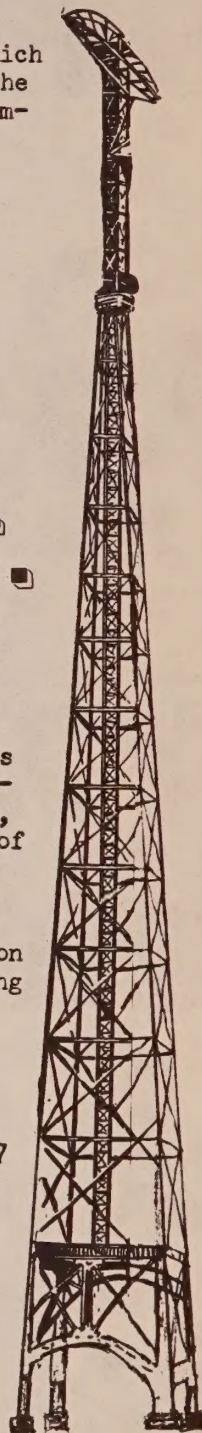
COLORFUL ERA ENDS

A giant 410-foot radio transmission antenna tower topples to the ground in Rocky Point, N.Y., yesterday, ending a colorful era in communications history. RCA Global Communications, Inc. demolished the last of its 12 towers, all that remained of "Radio Central," the most powerful radio station in the world in its heyday. The towers became obsolete with the advent of undersea cables and satellites. The tower was built in 1921 and served for 30 years as part of the station for transmission of overseas messages. It was equivalent to a 40-story building in height.

Daily Review- December, 1977

Port Jefferson and Rocky Point are located a few miles apart on Long Island, N.Y.. In 1921 Port Jefferson was the nearest major town, therefore the differences in story locations.

by Allan Bryant



THE COLLECTOR'S ADS

WANTED Two center spinners for National type 'B' dials. Henry O Meyer, 2 Murphy Place, San Mateo, Calif. 94402

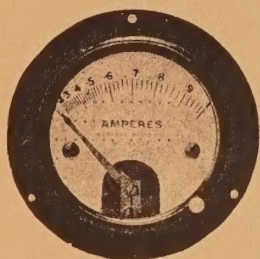
WANTED Info about radios built by Winchester Repeating Arms Co, New Haven Conn. about 1929. Have radio and matching table with speaker. 26-26-26-26-27-26-PP 71A. F.R.Tesche, 3728 Mosswood Dr. Lafayette, Ca. 94549. (415)284-5608.

FREE Repro dial setting log card for Pooley cabined AKs. Mylar cover included. Send SASE to Jerry Newton, Rt. 1 Box 262, Woodland, Calif. 95695

WANTED Four Radiola 60 feet. Crosley 51 transformer (good or bad). I.D. plate for AK type 'M' horn. Allan Bryant, 4251 Blewett St, Fremont, Ca. 94538

WANTED: Old beat-up Radio News magazines, ads, or other radio related literature for donation to C.H.R.S. for use in journal. Please send to journal editor.

WANT ADS ARE FREE TO ALL MEMBERS OF THE CALIFORNIA HISTORICAL RADIO SOCIETY. SUBMIT ADS TO THE EDITOR, ALLAN BRYANT, 4251 BLEWETT STREET, FREMONT, CA. 94538. DUE TO THE NON-PROFIT STATUS OF OUR SOCIETY, WE CANNOT ACCEPT ADS OF A COMMERCIAL NATURE.



INSTRUMENT REPAIR WORK

We are equipped to repair electrical and radio measuring instruments of any type, make or size. Scientific, reliable work at moderate prices. Don't throw your burnt-out instruments into the discard. Send them to us for repair. Voltmeters, ammeters, frequency meters, hot wire ammeters, galvanometers and any other type of meters repaired.

Announcement

After a year of extensive scientific, nautical and electrical development work and manufacturing, we have decided to extend our present business scope to cover the entire radio field with a new line of apparatus decidedly different from what you have been accustomed to in the past. The same reliable service that we have extended our customers in the past years will be yours in the development of our new radio department.

VACUUM TUBES—All Makes

We carry a complete stock of every standard make of vacuum tube, both transmitting and receiving. A. P., Cunningham and Radiotrons. Vacuum tube accessories are also included in our line. C. W. apparatus is one of our specialties. Measuring instruments for C. W. transmitters, both A. C. and D. C., are always on hand.



We Stock a Complete Line of C. W. generators in voltages ranging from 500 to 2000 D. C., with either A. C. or D. C. motors. These can be had in 100, 200 and 500 watt sizes. Special Generators built to order. Armature Winding.

We also carry a good line of transformers for every use in a radio station. Standard makes of any type of radio apparatus always carried in stock.

This is Only an Announcement. Watch for Our Ad in the Next Issue

HEINTZ & KOHLMOS, 606 Mission Street, San Francisco, California

Say Radio to the Advertiser, it will help you.



**SPECIAL OFFER
SEIBT PHONES**

Unequalled opportunity. Special purchase cut price to unheard-of figure. We pass the savings on to you. World famous Seibt Phones—the invention of Dr. Seibt, builder of Seibt Precision Instruments—were \$12.75.

Equipped with Firco No. 34B, round type, "Bull - Dog - Grip" Plug, for only \$0.25

Nearest Firco dealer can supply you.

Wouldn't You Like to Own this Station?

TUNER, detector and 6-step amplifier for \$115.00! Real quality at a new low price level—so arranged that you can invest a little at a time and yet get results right from the start.

That's what you get in Firco Midget Sets. You can start with just the Firco Tuner (150 to 1000 meters) for \$15.00 and the Firco Detector for \$11.00. You'll get results at once, better than you ever expected. Then you can add a little at a time till you get a powerful station like the one shown here.

Or, hook Firco Midget Audion Sets on to your present receiving apparatus. But to preserve neat appearance and insure smooth operation, use Firco Audion Sets thruout. Then you're sure of results, because they're made to work together.

Read the price list below. Go to your radio dealer and let the sets speak of their quality for themselves. Then resolve to put every cent you invest in radio from now on into Firco apparatus—where you get the most for your money.

Note: Six steps of amplification are made entirely practical, without howling or squealing, by the use of Firco Saco-Clad transformers. Saco-Clad 100% shielded amplifying transformers are also sold separately, in individual cartons, for \$5.00.

Hook a Vocaloud onto any amplifying combination of Firco Sets, or other apparatus, and get your sig-

nals QSA all over your house. No batteries, no adjustments, no extras. Station type (shown above) in solid mahogany cabinets, \$30.00.

Pick up the weak signals with Seibt or Brown phones, also sold by Firco dealers under the Firco trademark. At the new low prices, Brown super-sensitive, imported Phones are an unheard-of bargain.



**FIRCO MIDGET
RADIO SETS**

Tuner, 35A...	\$15.00
Detector, 36A...	11.00
Detector and One-step Am- plifier, 37A...	24.00
Detector and Two-step Amplifier, 38A	40.00
One-step Am- plifier, 39A...	18.00
Two-Step Am- plifier, 40A...	30.00

BROWN PHONES	
Type A, Adjust- able; was	\$22.00, now \$18.00
Type D, for Radio work; was \$20.00, now	16.00

John Firth & Company, Inc., 18 Broadway, New York

FIRCO RADIO

MIDGET RECEIVING SETS

"Pioneers—since 1901"

Say Radio to the Advertiser, it will help you.